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GenCore version 5.1.6
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OM protein - protein search, using sw model

Run on: June 18, 2003, 03:16:37 ; Search time 37.0454 Seconds
(without alignments)
1215.770 Million cell updates/sec

Title: US-09-807-933B-7

Perfect score: 1826
Sequence: 1 MKFTVAITSAVALALSSA.....TPKEVTCFALTRSGCERK 338

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 908470 seqs, 133250620 residues

Total number of hits/satisfying chosen parameters: 908470

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : A_Geneseq_101002:*

- 1: /SID52/gcgdata/geneseq/geneseq-emb1/AA1980.DAT.*
- 2: /SID52/gcgdata/geneseq/geneseq-emb1/AA1981.DAT.*
- 3: /SID52/gcgdata/geneseq/geneseq-emb1/AA1982.DAT.*
- 4: /SID52/gcgdata/geneseq/geneseq-emb1/AA1983.DAT.*
- 5: /SID52/gcgdata/geneseq/geneseq-emb1/AA1984.DAT.*
- 6: /SID52/gcgdata/geneseq/geneseq-emb1/AA1985.DAT.*
- 7: /SID52/gcgdata/geneseq/geneseq-emb1/AA1986.DAT.*
- 8: /SID52/gcgdata/geneseq/geneseq-emb1/AA1987.DAT.*
- 9: /SID52/gcgdata/geneseq/geneseq-emb1/AA1988.DAT.*
- 10: /SID52/gcgdata/geneseq/geneseq-emb1/AA1989.DAT.*
- 11: /SID52/gcgdata/geneseq/geneseq-emb1/AA1990.DAT.*
- 12: /SID52/gcgdata/geneseq/geneseq-emb1/AA1991.DAT.*
- 13: /SID52/gcgdata/geneseq/geneseq-emb1/AA1992.DAT.*
- 14: /SID52/gcgdata/geneseq/geneseq-emb1/AA1993.DAT.*
- 15: /SID52/gcgdata/geneseq/geneseq-emb1/AA1994.DAT.*
- 16: /SID52/gcgdata/geneseq/geneseq-emb1/AA1995.DAT.*
- 17: /SID52/gcgdata/geneseq/geneseq-emb1/AA1996.DAT.*
- 18: /SID52/gcgdata/geneseq/geneseq-emb1/AA1997.DAT.*
- 19: /SID52/gcgdata/geneseq/geneseq-emb1/AA1998.DAT.*
- 20: /SID52/gcgdata/geneseq/geneseq-emb1/AA1999.DAT.*
- 21: /SID52/gcgdata/geneseq/geneseq-emb1/AA2000.DAT.*
- 22: /SID52/gcgdata/geneseq/geneseq-emb1/AA2001.DAT.*
- 23: /SID52/gcgdata/geneseq/geneseq-emb1/AA2002.DAT.*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	1826	100.0	338	21	AA09824
2	1826	100.0	338	23	AA015055
3	1826	100.0	338	23	AA08063
4	1791.5	98.1	387	21	AA09825
5	1791.5	98.1	387	23	AA015056
6	1791.5	98.1	387	23	AA08064
7	1247	68.3	338	21	AA09821
8	1247	68.3	338	23	AA015052
9	1247	68.3	338	23	AA08060
10	1209	66.2	360	21	AA09823

11	1209	66.2	360	23	AA015054
12	1209	66.2	360	23	AA08062
13	1202	65.8	366	21	AA09822
14	1202	65.8	366	23	AA015053
15	1202	65.8	366	23	AA08061
16	1197	65.6	346	21	AA09826
17	1197	65.6	346	23	AA015057
18	1197	65.6	346	23	AA08065
19	966.5	52.9	245	23	AA015063
20	946	51.8	228	23	AA015062
21	769.5	42.1	299	17	AA04928
22	769.5	42.1	299	19	AA063624
23	768.5	42.1	306	19	AA044270
24	767.5	42.0	225	21	AA048798
25	767.5	42.0	225	22	AA080507
26	762.5	41.8	200	19	AA053979
27	761.5	41.7	225	17	AA04925
28	761.5	41.7	297	17	AA04933
29	761.5	41.7	308	17	AA04934
30	760.5	41.6	200	19	AA053967
31	754.5	41.3	200	19	AA053968
32	753.5	41.3	204	19	AA053970
33	740	40.5	223	23	AA015070
34	740	40.5	223	23	AA080602
35	735	40.3	349	17	AA04927
36	729.5	40.0	306	19	AA044269
37	727.5	39.8	304	19	AA044272
38	725	39.7	307	19	AA044273
39	722.5	39.6	202	19	AA053972
40	722.5	39.6	222	17	AA04929
41	722.5	39.6	294	17	AA04937
42	718	39.3	305	19	AA04854
43	718	39.3	305	19	AA041929
44	717	39.3	234	19	AA046618
45	717	39.3	286	19	AA057420

ALIGNMENTS

XX	RESULT 1
XX	AA09824
ID	AA09824 standard; Protein: 338 AA.
XX	
AC	AA09824;
XX	
DT	25-SEP-2000 (first entry)
XX	
DE	Endoglucanase protein sequence 4.
XX	
KW	Endoglucanase; cellulose breakdown; produce pulp; papermaking;
KW	animal foodstuff.
XX	
OS	Mucor circinelloides.
XX	
PN	WO200024879-A1.
XX	
PD	04-MAY-2000.
XX	
PF	25-OCT-1999; 99WO-JP05884.
XX	
PR	23-OCT-1998; 98JP-0302387.
XX	
PA	(MEIJ) MEIJ SEIKA KAISHA LTD.
XX	
PI	Nakamura Y, Moriya T, Baba Y, Yanai K, Sumida N, Nishimura T
PI	Murashima K, Nakane A, Yaguchi T, Koga J, Murakami T, Kono T
XX	
WPI	2000-365117/31.
DR	
DR	N-PSDB; AAA62729.
XX	
PT	Endoglucanases of fungal origin with high activity under alkaline
XX	conditions for production of paper pulp and animal feedstuffs -

Rhizopus arrhizus
R. oryzae CP96001
Endoglucanase prot
Rhizopus arrhizus
R. oryzae CP96001
Endoglucanase prot
P. nitens CP99002
Endoglucanase-rela
Endoglucanase-rela
Cellulolytic enzyme
Monocomponent endo
Hybrid DNA protein
Amino acid sequenc
Chrysoosporium Cl s
Thielavia terrestr
Cellulolytic enzyme
Chimeric endogluc
Chimeric endogluc
Sordaria fimicola
Thielavia terrestr
Myceliophthora the
Humicola insolens
Humicola insolens
Humicola insolens
Hybrid DNA protein
Hybrid DNA protein
Hybrid DNA protein
Macrophomina phase
Cellulolytic enzyme
Chimeric endogluc
Humicola insolens
Humicola insolens
Humicola insolens

XX Claim 44; Page 120-122; 180pp; Japanese.

PS This sequence represents an endoglucanase protein. The invention relates
 CC to an endoglucanase of fungal origin which can completely break down
 CC purified cellulose at a concentration of less than 1mg protein/litre,
 CC and produces more than 50% breakdown of cellulose at pH 8.5. The
 CC invention includes endoglucanase protein sequences (see
 CC AAB09825-B09830), endoglucanase nucleotide sequences (see
 CC AAB62726-A62732) and primers (AAB62731-A62802) which are used in the
 CC identification of the endoglucanase sequences, and in the construction of
 CC vectors containing the polynucleotides. The endoglucanase enzymes are
 CC used for the production of pulp for papermaking and for the production of
 CC animal foodstuffs.

XX Sequence 338 AA;

Query Match 100.0%; Score 1826; DB 21; Length 338;
 Best Local Similarity 100.0%; Pred. No. 3.7e-128;
 Matches 338; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MKFTVAITSIAVALALSSSAEAAACSSVYQCGGIGMSGPTCCESGSTCVAOEGNKYYSQ 60
 DB 1 MKFTVAITSIAVALALSSSAEAAACSSVYQCGGIGMSGPTCCESGSTCVAOEGNKYYSQ 60
 QY 61 CLPSSHNNAGNASTTKTSTKTSTTAKATATVTKTKTKTKTKTKTTTAAASTST 120
 DB 61 CLPSSHNNAGNASTTKTSTKTSTTAKATATVTKTKTKTKTKTKTTTAAASTST 120
 QY 121 SSSAGYKVISGKSGSGSTTRWDCCKASCWPKASVTGPVDTCAANGISILDANAQSG 180
 DB 121 SSSAGYKVISGKSGSGSTTRWDCCKASCWPKASVTGPVDTCAANGISILDANAQSG 180
 QY 181 CNGGNGFMCNNOPMAVNDLAYGFAAASLAGSEAGMCCGCELTFTSGAASGKMWVQ 240
 DB 181 CNGGNGFMCNNOPMAVNDLAYGFAAASLAGSEAGMCCGCELTFTSGAASGKMWVQ 240
 QY 241 VTNTGDLGSHNFDLQWPGGSGVGI FNGCAQWGA PNDGWAR YGVSVSDCASLPALQ 300
 DB 241 VTNTGDLGSHNFDLQWPGGSGVGI FNGCAQWGA PNDGWAR YGVSVSDCASLPALQ 300
 QY 301 AGCKRFPNWFKNSDNPTMTPEKVTCPALTTTRSGCERK 338
 DB 301 AGCKRFPNWFKNSDNPTMTPEKVTCPALTTTRSGCERK 338

RESULT 2
 ID AAO15055 standard; Protein; 338 AA.

XX AAO15055;
 AC AAO15055;
 DT 22-AUG-2002 (first entry)
 DE Rhizopus arrhizus endoglucanase-related protein 4.
 XX Zygomyces-originate endoglucanase; cellulose binding domain;
 KM fibre processing; waste paper de-inking; paper pulp.
 OS Mucor circinelloides.
 XX WO200242474-A1.
 XX 30-MAY-2002.
 XX 21-NOV-2001; 2001WO-JP10188.
 XX 21-NOV-2000; 2000JP-0354296.
 XX (MEIJ) MEIJI SEIKA KAISHA LTD.
 XX Nakane A, Baba Y, Koga J, Kubota H;
 XX

DR WPI; 2002-471729/50.
 DR N-PSDB; AAL43247.

PT Cellulose-binding domain-lacking Zygomyces-originate endoglucanase,
 PT with effect of endoglucanase activity enhanced in processing fibers,
 PT deinking waste paper and improving freeness of paper pulp
 XX
 XX Claim 5; Page 68-70; 109pp; Japanese.

CC The invention comprises the amino acid and coding sequences of
 CC Zygomyces-originate endoglucanase enzymes lacking the cellulose
 CC binding domain. The Zygomyces-originate endoglucanase enzymes of the
 CC invention have enhanced endoglucanase activity. The Zygomyces-
 CC originate endoglucanase enzymes of the invention are useful for
 CC processing fibres, de-inking waste paper and improving the freeness of
 CC paper pulp - which is particularly applicable in detergent compositions.
 CC The present amino acid sequence represents an endoglucanase-related
 CC protein of the invention.

XX Sequence 338 AA;

Query Match 100.0%; Score 1826; DB 23; Length 338;
 Best Local Similarity 100.0%; Pred. No. 3.7e-128;
 Matches 338; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MKFTVAITSIAVALALSSSAEAAACSSVYQCGGIGMSGPTCCESGSTCVAOEGNKYYSQ 60
 DB 1 MKFTVAITSIAVALALSSSAEAAACSSVYQCGGIGMSGPTCCESGSTCVAOEGNKYYSQ 60
 QY 61 CLPSSHNNAGNASTTKTSTKTSTTAKATATVTKTKTKTKTKTKTTTAAASTST 120
 DB 61 CLPSSHNNAGNASTTKTSTKTSTTAKATATVTKTKTKTKTKTKTTTAAASTST 120
 QY 121 SSSAGYKVISGKSGSGSTTRWDCCKASCWPKASVTGPVDTCAANGISILDANAQSG 180
 DB 121 SSSAGYKVISGKSGSGSTTRWDCCKASCWPKASVTGPVDTCAANGISILDANAQSG 180
 QY 181 CNGGNGFMCNNOPMAVNDLAYGFAAASLAGSEAGMCCGCELTFTSGAASGKMWVQ 240
 DB 181 CNGGNGFMCNNOPMAVNDLAYGFAAASLAGSEAGMCCGCELTFTSGAASGKMWVQ 240
 QY 241 VTNTGDLGSHNFDLQWPGGSGVGI FNGCAQWGA PNDGWAR YGVSVSDCASLPALQ 300
 DB 241 VTNTGDLGSHNFDLQWPGGSGVGI FNGCAQWGA PNDGWAR YGVSVSDCASLPALQ 300
 QY 301 AGCKRFPNWFKNSDNPTMTPEKVTCPALTTTRSGCERK 338
 DB 301 AGCKRFPNWFKNSDNPTMTPEKVTCPALTTTRSGCERK 338

RESULT 3
 ID ABB08063 standard; Protein; 338 AA.

XX ABB08063;
 AC ABB08063;
 DT 27-AUG-2002 (first entry)
 DE M. circinelloides CP99001 MCEI protein.
 XX Cellulase; endoglucanase; surfactant; detergent; cellulose; paper;
 KM pulp treatment; MCEI.
 OS Mucor circinelloides.
 XX
 XX Key Location/Qualifiers
 XX FH 1..22
 XX Peptide /note= "signal peptide"
 XX FT 23..338
 XX Protein /note= "mature protein"
 XX
 XX WO200238754-A1.
 XX

PD 16-MAY-2002.
 XX 12-NOV-2001; 2001WO-JP09858.
 XX 10-NOV-2000; 2000JP-0343921.
 XX (MEIJ) MEIJ SEIKA KAISHA LTD.
 XX Koga J, Nakane A, Baba Y, Kono T;
 XX WPI; 2002-471555/50.
 DR
 XX Cellulase preparations containing transglucanase-originate
 PT endoglucanase and non-ionic surfactants, useful in detergent
 PT compositions, in treating cellulose fibers and delinking waste paper and
 PT improving freeness of paper pulp
 XX
 PS Claim 3; Page 27-29; 38pp; Japanese.
 XX
 CC The invention relates to a cellulase preparation comprising a
 CC transglucanase-originate endoglucanase and a non-ionic surfactant. The
 CC endoglucanase is selected from RCEI, RCEII, RCEIII, MCEI, MCEII or PCBI
 CC proteins. The preparations are useful in detergent compositions, in
 CC treating cellulose fibers and delinking waste paper and improving the
 CC freeness of paper pulp. The fibers treated by the preparations have
 CC reduced feathering and improved skin-feel and appearance with colour
 CC clarification, local change in colour and softening, and after delinking
 CC and paper pulp treatment, there is an improvement in freeness of the
 CC paper pulp. This treatment with the cellulase preparation can be operated
 CC at significantly lower cost. The present sequence represents the
 CC M. circinnellolides CP99001 MCEI protein.
 XX
 SQ Sequence 338 AA;

Query Match 100.0%; Score 1826; DB 23; Length 338;
 Best Local Similarity 100.0%; Pred. No. 3,7e-128;
 Matches 338; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MKFTVAITSIIVALLSSAEASCSYVGGCGIGMGPCTCCSGSTCVAQEGNKYYSQ 60
 DB 1 MKFTVAITSIIVALLSSAEASCSYVGGCGIGMGPCTCCSGSTCVAQEGNKYYSQ 60
 QY 61 CLPESHNNAGNASTKTKSTTTAKATATVTTKVTYTKTTKTTSTTAAASTST 120
 DB 61 CLPESHNNAGNASTKTKSTTTAKATATVTTKVTYTKTTKTTSTTAAASTST 120
 QY 121 SSSAGYKVISGSGSGSSTTRWDCCKASCMPGKASVTPVDTCAANGISILDANAQSG 180
 DB 121 SSSAGYKVISGSGSGSSTTRWDCCKASCMPGKASVTPVDTCAANGISILDANAQSG 180
 QY 181 CNGNGFPCNNOPPAVNDLAYGPAASISAGSNAGCCGCTLTFTSGAAGKRMVQ 240
 DB 181 CNGNGFPCNNOPPAVNDLAYGPAASISAGSNAGCCGCTLTFTSGAAGKRMVQ 240
 QY 241 VTNTGDLGSHNFDLPQPGGAGVINGCAQMGAPNDGARYGVSVDCAIPLSALO 300
 DB 241 VTNTGDLGSHNFDLPQPGGAGVINGCAQMGAPNDGARYGVSVDCAIPLSALO 300
 QY 301 AGCKMRFNMFKXNDPMTFPEVTCPAELTTRSGCERK 338
 DB 301 AGCKMRFNMFKXNDPMTFPEVTCPAELTTRSGCERK 338

RESULT 4
 AAB09825
 ID AAB09825 standard; Protein; 387 AA.
 XX
 AC AAB09825;
 XX
 DT 25-SEP-2000 (first entry)
 XX
 DE Endoglucanase protein sequence 5.
 XX

KW Endoglucanase; cellulose breakdown; produce pulp; papermaking;
 KW animal feedstuff.
 XX
 OS Phycomyces nitens.
 XX
 FN W0200024879-A1.
 XX
 PD 04-MAY-2000.
 XX
 XX 25-OCT-1999; 99WO-JP05884.
 XX
 XX 23-OCT-1998; 98JP-0302387.
 XX
 XX (MEIJ) MEIJ SEIKA KAISHA LTD.
 XX
 PI Nakamura Y, Moriya T, Baba Y, Yanai K, Sumida N, Nishimura T;
 PI Murashima K, Nakane A, Yaguchi T, Koga J, Murakami T, Kono T;
 XX
 DR WPI; 2000-365117/31.
 DR N-PSDB; AAA62730.
 XX
 PT Endoglucanases of fungal origin with high activity under alkaline
 PT conditions for production of paper pulp and animal feedstuffs
 XX
 PS Claim 44; Page 125-127; 180pp; Japanese.

CC This sequence represents an endoglucanase protein. The invention relates
 CC to an endoglucanase of fungal origin which can completely break down
 CC purified cellulose at a concentration of less than 1mg protein/litre,
 CC and produces more than 50% breakdown of cellulose at pH 8.5. The
 CC invention includes endoglucanase protein sequences (see
 CC AAB09825-B09830), endoglucanase nucleotide sequences (see
 CC AAA62726-A62732) and primers (AAA62733-A62802) which are used in the
 CC identification of the endoglucanase sequences, and in the construction of
 CC vectors containing the polynucleotides. The endoglucanase enzymes are
 CC used for the production of pulp for papermaking and for the production of
 CC animal feedstuffs.
 CC
 XX
 SQ Sequence 387 AA;

Query Match 98.1%; Score 1791.5; DB 21; Length 387;
 Best Local Similarity 87.3%; Pred. No. 1.6e-125;
 Matches 338; Conservative 0; Mismatches 0; Indels 49; Gaps 1;

QY 1 MKFTVAITSIIVALLSSAEASCSYVGGCGIGMGPCTCCSGSTCVAQEGNKYYSQ 60
 DB 1 MKFTVAITSIIVALLSSAEASCSYVGGCGIGMGPCTCCSGSTCVAQEGNKYYSQ 60
 QY 31 -----CCGIGMGPCTCCSGSTCVAQEGNKYYSQCLPESHNNAG 71
 DB 61 CIPKXSSSSSSCSYVGGCGIGMGPCTCCSGSTCVAQEGNKYYSQCLPESHNNAG 120
 QY 72 NASTKTKSTKSTTTAKATATVTTKVTYTKTTKTTSTTAAASTSTSSAGYKVISG 131
 DB 72 NASTKTKSTKSTTTAKATATVTTKVTYTKTTKTTSTTAAASTSTSSAGYKVISG 131
 QY 121 NASTKTKSTKSTTTAKATATVTTKVTYTKTTKTTSTTAAASTSTSSAGYKVISG 180
 DB 121 NASTKTKSTKSTTTAKATATVTTKVTYTKTTKTTSTTAAASTSTSSAGYKVISG 180
 QY 132 GKSSGSTTRWDCCKASCMPGKASVTPVDTCAANGISILDANAQSGCNGGPFMKN 191
 DB 132 GKSSGSTTRWDCCKASCMPGKASVTPVDTCAANGISILDANAQSGCNGGPFMKN 191
 QY 181 GKSSGSTTRWDCCKASCMPGKASVTPVDTCAANGISILDANAQSGCNGGPFMKN 240
 DB 181 GKSSGSTTRWDCCKASCMPGKASVTPVDTCAANGISILDANAQSGCNGGPFMKN 240
 QY 192 NOPAVNDELAYGPAASISAGSNAGCCGCTLTFTSGAAGKRMVQVNTGDLGSLN 251
 DB 241 NOPAVNDELAYGPAASISAGSNAGCCGCTLTFTSGAAGKRMVQVNTGDLGSLN 300
 QY 252 HFDLPQPGGAGVINGCAQMGAPNDGARYGVSVDCAIPLSALOACCKRMFMFK 311
 DB 301 HFDLPQPGGAGVINGCAQMGAPNDGARYGVSVDCAIPLSALOACCKRMFMFK 360
 QY 312 NSDNPMTFKEVTCPAELTTRSGCERK 338
 DB 361 NSDNPMTFKEVTCPAELTTRSGCERK 387

RESULT 5

AA015056 standard; Protein; 387 AA.

AA015056;

22-AUG-2002 (first entry)

Rhizopus arrhizus endoglucanase-related protein 5.

Zygomycetes-originated endoglucanase; cellulose binding domain;

fibre processing; waste paper de-inking; paper pulp.

Mucor circinelloides.

MO200242474-A1.

30-MAY-2002.

21-NOV-2001; 2001WO-JP10188.

21-NOV-2000; 2000JP-0354296.

(MEIJ) SEIKA KAISHA LTD.

Nakane A, Baba Y, Koga J, Kubota H;

WPI; 2002-471729/50.

N-FSDB; AAL43248.

Cellulose-binding domain-lacking Zygomycetes-originated endoglucanase,

with effect of endoglucanase activity enhanced in processing fibers,

deinking waste paper and improving freeness of paper pulp -

Claim 5; Page 73-75; 109pp; Japanese.

The invention comprises the amino acid and coding sequences of
 CC zygomycetes-originated endoglucanase enzymes lacking the cellulose
 CC binding domain. The zygomycetes-originated endoglucanase enzymes of the
 CC invention have enhanced endoglucanase activity. The zygomycetes-
 CC originated endoglucanase enzymes of the invention are useful for
 CC processing fibers, de-inking waste paper and improving the freeness of
 CC paper pulp - which is particularly applicable in detergent compositions.
 CC The present amino acid sequence represents an endoglucanase-related
 CC protein of the invention.

Sequence 387 AA;

Query Match 98.1%; Score 1791.5; DB 23; Length 387;

Best Local Similarity 87.3%; Pred. No. 1.6e-125; Indels 49; Gaps 1;

Matches 338; Conservative 0; Mismatches 0; Indels 49; Gaps 1;

1 MKFTVAITSIALALSSSAAPACSSVYG----- 30

1 MKFTVAITSIALALSSSAAPACSSVYGCGGIGMTGPTCCDAGSTCKAQKDKNTYSSQ 60

1 MKFTVAITSIALALSSSAAPACSSVYGCGGIGMTGPTCCDAGSTCKAQKDKNTYSSQ 60

1 MKFTVAITSIALALSSSAAPACSSVYGCGGIGMTGPTCCDAGSTCKAQKDKNTYSSQ 60

1 MKFTVAITSIALALSSSAAPACSSVYGCGGIGMTGPTCCDAGSTCKAQKDKNTYSSQ 60

1 MKFTVAITSIALALSSSAAPACSSVYGCGGIGMTGPTCCDAGSTCKAQKDKNTYSSQ 60

1 MKFTVAITSIALALSSSAAPACSSVYGCGGIGMTGPTCCDAGSTCKAQKDKNTYSSQ 60

1 MKFTVAITSIALALSSSAAPACSSVYGCGGIGMTGPTCCDAGSTCKAQKDKNTYSSQ 60

1 MKFTVAITSIALALSSSAAPACSSVYGCGGIGMTGPTCCDAGSTCKAQKDKNTYSSQ 60

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1 MKFTVAITSIALALSSSAAPACSSVYGCGGIGMTGPTCCDAGSTCKAQKDKNTYSSQ 60

301 HPDLQMGGGVGTIFGCAAGCAQNDGMDGARYGVSSVSDCASLPSALQACKRRFMFK 360

312 NSDNPMTFKEVTCFAELTTRSGCERK 338

361 NSDNPMTFKEVTCFAELTTRSGCERK 387

RESULT 6

ABB08064 standard; Protein; 387 AA.

ABB08064;

27-AUG-2002 (first entry)

M. circinelloides CP99001 MCEII protein.

Cellulase; endoglucanase; surfactant; detergent; cellulose; paper;

pulp treatment; MCEII.

Mucor circinelloides.

Key location/Qualifiers

Peptide 1..22

Protein /note="signal peptide"

/note="mature protein"

MO200238754-A1.

16-MAY-2002.

12-NOV-2001; 2001WO-JP09858.

10-NOV-2000; 2000JP-0343921.

(MEIJ) SEIKA KAISHA LTD.

Koga J, Nakane A, Baba Y, Kono T;

WPI; 2002-471555/50.

Cellulase preparations containing transconjugant-originated

endoglucanase and non-ionic surfactants, useful in detergent

compositions, in treating cellulose fibers and deinking waste paper and

improving freeness of paper pulp -

Claim 3; Page 29-31; 38pp; Japanese.

The invention relates to a cellulase preparation comprising a
 CC transconjugant-originated endoglucanase and a non-ionic surfactant. The
 CC endoglucanase is selected from RCEI, RCEII, MCEI, MCEII or PCBI
 CC proteins. The preparations are useful in detergent compositions, in
 CC treating cellulose fibers and deinking waste paper and improving the
 CC freeness of paper pulp. The fibers treated by the preparations have
 CC clarified feathering and improved skin-feel and appearance with colour
 CC clarification, local change in colour and softening, and after deinking
 CC paper pulp. This treatment, there is an improvement on freeness of the
 CC at significantly lower cost. The present sequence represents the
 CC M. circinelloides CP99001 MCEII protein.

Sequence 387 AA;

Query Match 98.1%; Score 1791.5; DB 23; Length 387;

Best Local Similarity 87.3%; Pred. No. 1.6e-125; Indels 49; Gaps 1;

Matches 338; Conservative 0; Mismatches 0; Indels 49; Gaps 1;

1 MKFTVAITSIALALSSSAAPACSSVYG----- 30

1 MKFTVAITSIALALSSSAAPACSSVYGCGGIGMTGPTCCDAGSTCKAQKDKNTYSSQ 60

QY 31 -----QCGIGWGPCTCCESGTCVAGEGNKYYVSQLPGSHNNAG 71
 DB 61 CIPKSSSSSSSSSVYQCGIGWGPCTCCESGTCVAGEGNKYYVSQLPGSHNNAG 120
 QY 72 NASTTKTSTSTSTTTAKATVTTKVTYTKTTTSTTAAASTSTSSAGKYVSG 131
 DB 121 NASTTKTSTSTSTTTAKATVTTKVTYTKTTTSTTAAASTSTSSAGKYVSG 180
 QY 132 GKSSGSTRYWDCCKASCMWPKASVYGPVDTCAVNSIILDANAQSGCNGGMPKNN 191
 DB 181 GKSSGSTRYWDCCKASCMWPKASVYGPVDTCAVNSIILDANAQSGCNGGMPKNN 240
 QY 192 NOPAVNDELAYGFPAASIASNEAGWCCGCELTFTSGAASGKMMVQVNTGDLGSN 251
 DB 241 NOPAVNDELAYGFPAASIASNEAGWCCGCELTFTSGAASGKMMVQVNTGDLGSN 300
 QY 252 HFDLQMPGGVGIENGCAQWGPNDGNGARYGVSVSDCASLPSALQACCKMFPNFK 311
 DB 301 HFDLQMPGGVGIENGCAQWGPNDGNGARYGVSVSDCASLPSALQACCKMFPNFK 360
 QY 312 NSDNPMTFKEVTCPAELTTRSGCERK 338
 DB 361 NSDNPMTFKEVTCPAELTTRSGCERK 387

RESULT 7

AAB09821 standard; Protein; 338 AA.

AAB09821;

25-SEP-2000 (first entry)

Endoglucanase protein sequence 1.

Endoglucanase; cellulose breakdown; produce pulp; papermaking;

animal foodstuff.

Rhizopus oryzae.

MO200024879-A1.

04-MAY-2000.

25-OCT-1999; 99WO-JP05884.

23-OCT-1998; 98JP-0302387.

(MEIJ) MEIJI SEIKA KAISHA LTD.

Nakamura Y, Moriya T, Baba Y, Yanai K, Sumida N, Nishimura T;

Muraishi K, Nakane A, Yaguchi T, Koga J, Murakami T, Kono T;

MPI; 2000-365117/31.

N-PSDB; AAA62726.

Endoglucanases of fungal origin with high activity under alkaline

conditions for production of paper pulp and animal feedstuffs -

Claim 44; Page 106-108; 180JP; Japanese.

This sequence represents an endoglucanase protein. The invention relates to an endoglucanase of fungal origin which can completely break down purified cellulose at a concentration of less than 1mg protein/litre, and produces more than 50% breakdown of cellulose at pH 8.5. The invention includes endoglucanase protein sequences (see AA09825-A09830), endoglucanase nucleotide sequences (see AA62726-A62732) and primers (AA62733-A62802) which are used in the identification of the endoglucanase sequences, and in the construction of vectors containing the polynucleotides. The endoglucanase enzymes are used for the production of pulp for papermaking and for the production of animal foodstuffs.

SQ Sequence 338 AA;

Query Match 68.3%; Score 1247; DB 21; Length 338;

Best Local Similarity 65.4%; Pred. No. 5e-85; Matches 227; Conservative 40; Mismatches 62; Indels 18; Gaps 6;

QY 1 MKFTVAITSLAVALALSS-AEASCSVYQCGIGWGPCTCCESGTCVAGEGNKYYV 59
 DB 1 MKFTIASMLALALGEMASAECKLYQCGGKMMNGPTCCESGTC-KVSNQYVS 58
 QY 60 QCLPGSHNNAGNASTTKTSTSTTTAKATVTTKVTYTKTTTSTTAAAST- 118
 DB 59 QCLPGSGGNGKSSSAHKTITTAHKKT-----TTAAHKTITTAAPAKTITVAKSTP 111
 QY 119 ---STSSAGKYVSGKSGSTRYWDCCKASCMWPKASVYGPVDTCAVNSIIL-D 174
 DB 112 SNSSSSSGKXSAVSGAGSGVTRRWDCCKASCMWPKASVYGPVDTCAVNSIIL-D 171
 QY 175 ANAAGCNGGNGFMCNNQPAVNDELAYGFPAASIASNEAGWCCGCELTFTSGAASG 234
 DB 172 SNAAGCNGGNGSVMCNDQPAVNDELAYGFPAASIASGGSRRWCCGCELTFTSTSVAG 231
 QY 235 KKMVVQVNTGDLGSN--HFDLQMPGGVGIENGCAQWGPNDGNGARYGVSVSD 291
 DB 232 KKMVVQVNTGDLGSSTGAHFDLQMPGGVGIENGCSQWGPNDGNGARYGVSVSD 291
 QY 292 CASLPSALQACCKMFPNFKSDNPMTFKEVTCPAELTTRSGCERK 338
 DB 292 CSSLPSALQACCKMFPNFKSDNPMTFKEVTCPEKTAITAGCERK 338

RESULT 8

AA015052 standard; Protein; 338 AA.

AA015052;

22-AUG-2002 (first entry)

Rhizopus arrhizus endoglucanase-related protein 1.

Zygomycetes-originated endoglucanase; cellulose binding domain;

fibre processing; waste paper de-inking; paper pulp.

Rhizopus arrhizus.

WO200242474-A1.

30-MAY-2002.

21-NOV-2001; 2001WO-JP10188.

21-NOV-2000; 2000JP-0354296.

(MEIJ) MEIJI SEIKA KAISHA LTD.

Nakane A, Baba Y, Koga J, Kubota H;

MPI; 2002-471729/50.

N-PSDB; AAL43244, AAL43250.

Cellulose-binding domain-lacking Zygomycetes-originated endoglucanase,

with effect of endoglucanase activity enhanced in processing fibers,

deinking waste paper and improving freeness of paper pulp -

Claim 5; Page 54-55; 109JP; Japanese.

The invention comprises the amino acid and coding sequences of zygomycetes-originated endoglucanase enzymes lacking the cellulose binding domain. The zygomycetes-originated endoglucanase enzymes of the invention have enhanced endoglucanase activity. The zygomycetes-originated endoglucanase enzymes of the invention are useful for processing fibres, de-inking waste paper and improving the freeness of

CC paper pulp - which is particularly applicable in detergent compositions.
 CC The present amino acid sequence represents an endoglucanase-related
 CC protein of the invention.

XX Sequence 338 AA;

Query Match 68.3%; Score 1247; DB 23; Length 338;
 Best Local Similarity 65.4%; Pred. No. 5e-85;
 Matches 227; Conservative 40; Mismatches 62; Indels 18; Gaps 6;

1 MKPTVAITSIYALVALSS--AEASCSYVGGCGIGMGPTCCSGSTCVAGSGNXYYS 59
 1 MKPTTASALALALGTEMASAECSKLYGCGGNMNGPTCCSGSTC--KSNIDYIS 58
 60 QCLPGSHSNMAGNASTYKTSSTKTSTTTAAKATVTTKTVTTKTTKTTSTTAAST- 118
 59 QCLPGSGSGNKSSESAHKKTITTAHKKT-----TTAAHKKTITTAAPAKTTTAAKASTP 111
 119 ---STSSAGYKVIISGKSGSGSTTRYWDCCKASCMPKASVTGPVDTCAISGLD-D 174
 112 SNSSSSSGKYSAAVSGASGNGVTRRYWDCCKASCMPKAVSSPVKSCNKDGVTLASD 171
 175 ANAGSGCNGNGFPMNNQPMANVDLAYGFPAASIAAGSEMAWCCGCELTFTTSGAAG 234
 172 SNAGSCNGNSYMNNDQPMANVDNLAYGFPAALISGGESRWCCCFELTFTSTVAG 231
 235 KKNVVOVNTTGGDLGSN--HFDLQMPGGVGI FNGCAAQWGA PNDGAGARYGVSSVD 291
 232 KKNVVOVNTTGGDLGSSTGAHFDLQMPGGVGI FNGCSSOWGA PNDGAGARYGVSSVD 291
 292 CASLPSALQAGCKMRFNFKNNDPMTTFKEVTCPEALTTRSGCERK 338
 292 CSLSLPSALQAGCKMRFNFKNADNPMTYKEVTCPEKITAKTGCSRK 338

RESULT 9

ID ABB08060 standard; protein, 338 AA.

XX ABB08060;
 AC 27-AUG-2002 (first entry)
 XX R. oryzae CP96001 RCEI protein.
 DE Cellulase; endoglucanase; surfactant; detergent; cellulose; paper;
 KM pulp treatment; RCEI.
 XX Rhizopus oryzae.
 OS
 FH Key
 FT Peptide 1..23 location/Qualifiers
 FT Protein /note="signal peptide" 24..338
 FT Protein /note="mature protein" 24..338
 XX WO200238754-A1.
 XX 16-MAY-2002.
 XX 12-NOV-2001; 2001WO-JP09858.
 XX 10-NOV-2000; 2000JP-0343921.
 XX (MEIJ) MEIJI SEIKA KAISHA LTD.
 XX Koga J, Nakane A, Baba Y, Kono T;
 XX WPI; 2002-471555/50.
 XX Cellulase preparations containing transconjugant-originated
 PT endoglucanase and non-ionic surfactants, useful in detergent
 PT compositions, in treating cellulose fibers and deinking waste paper and

PT improving freeness of paper pulp -
 XX Claim 3; Page 21-22; 38pp; Japanese.

CC The invention relates to a cellulase preparation comprising a
 CC transconjugant-originated endoglucanase and a non-ionic surfactant. The
 CC endoglucanase is selected from RCEI, RCEII, MCEI, MCEII or PCEI
 CC proteins. The preparations are useful in detergent compositions, in
 CC treating cellulose fibers and deinking waste paper and improving the
 CC freeness of paper pulp. The fibers treated by the preparations have
 CC reduced feathering and improved skin-feel and appearance with colour
 CC clarification, local change in colour and softening, and after deinking
 CC and paper pulp treatment, there is an improvement on freeness of the
 CC paper pulp. This treatment with the cellulase preparation can be operated
 CC at significantly lower cost. The present sequence represents the
 CC R. oryzae CP96001 RCEI protein.

XX Sequence 338 AA;

Query Match 68.3%; Score 1247; DB 23; Length 338;
 Best Local Similarity 65.4%; Pred. No. 5e-85;
 Matches 227; Conservative 40; Mismatches 62; Indels 18; Gaps 6;

1 MKPTVAITSIYALVALSS--AEASCSYVGGCGIGMGPTCCSGSTCVAGSGNXYYS 59
 1 MKPTTASALALALGTEMASAECSKLYGCGGNMNGPTCCSGSTC--KSNIDYIS 58
 60 QCLPGSHSNMAGNASTYKTSSTKTSTTTAAKATVTTKTVTTKTTKTTSTTAAST- 118
 59 QCLPGSGSGNKSSESAHKKTITTAHKKT-----TTAAHKKTITTAAPAKTTTAAKASTP 111
 119 ---STSSAGYKVIISGKSGSGSTTRYWDCCKASCMPKASVTGPVDTCAISGLD-D 174
 112 SNSSSSSGKYSAAVSGASGNGVTRRYWDCCKASCMPKAVSSPVKSCNKDGVTLASD 171
 175 ANAGSGCNGNGFPMNNQPMANVDLAYGFPAASIAAGSEMAWCCGCELTFTTSGAAG 234
 172 SNAGSCNGNSYMNNDQPMANVDNLAYGFPAALISGGESRWCCCFELTFTSTVAG 231
 235 KKNVVOVNTTGGDLGSN--HFDLQMPGGVGI FNGCAAQWGA PNDGAGARYGVSSVD 291
 232 KKNVVOVNTTGGDLGSSTGAHFDLQMPGGVGI FNGCSSOWGA PNDGAGARYGVSSVD 291
 292 CASLPSALQAGCKMRFNFKNNDPMTTFKEVTCPEALTTRSGCERK 338
 292 CSLSLPSALQAGCKMRFNFKNADNPMTYKEVTCPEKITAKTGCSRK 338

RESULT 10

ID ABB09823 standard; Protein, 360 AA.

XX ABB09823;
 AC 25-SEP-2000 (first entry)
 XX Endoglucanase protein sequence 3.
 DE Endoglucanase; cellulose breakdown; produce pulp; papermaking;
 KM animal foodstuff.
 XX Rhizopus oryzae.
 OS
 FH Endoglucanase
 FT Endoglucanase; cellulose breakdown; produce pulp; papermaking;
 FT animal foodstuff.
 XX WO200024879-A1.
 XX 04-MAY-2000.
 XX 25-OCT-1999; 99WO-JP05884.
 XX 23-OCT-1998; 98JP-0302387.
 XX (MEIJ) MEIJI SEIKA KAISHA LTD.

PI Nakamura Y, Moriya T, Baba Y, Yanai K, Sumida N, Nishimura T;
 PI Murashima K, Nakane A, Yaguchi T, Koga J, Murakami T, Kono T;
 XX WPI: 2000-365117/31.
 DR N-PSDB; AAA62728.
 XX
 PT Endoglucanases of fungal origin with high activity under alkaline
 PT conditions for production of paper pulp and animal feedstuffs -
 XX
 PS Claim 44; Page 115-117; 180pp; Japanese.
 XX
 CC This sequence represents an endoglucanase protein. The invention relates
 CC to an endoglucanase of fungal origin which can completely break down
 CC purified cellulose at a concentration of less than 1mg protein/litre,
 CC and produces more than 50% breakdown of cellulose at pH 8.5. The
 CC invention includes endoglucanase protein sequences (see
 CC AA069825-B09830), endoglucanase nucleotide sequences (see
 CC AA062726-A62732) and primers (AA062733-A62802) which are used in the
 CC identification of the endoglucanase sequences, and in the construction of
 CC vectors containing the polynucleotides. The endoglucanase enzymes are
 CC used for the production of pulp for papermaking and for the production of
 CC animal foodstuffs.
 CC
 XX
 SQ Sequence 360 AA;
 Query Match 66.2%; Score 1209; DB 21; Length 360;
 Best Local Similarity 61.1%; Pred. No. 3.7e-82;
 Matches 220; Conservative 42; Mismatches 76; Indels 22; Gaps 5;
 QY 1 MKFTVAITSIAVALALSSS-AEAAAGSSVYGQCGIGMSGPTCCSGSTCYAOGKNTYS 59
 Db 1 MKFTLIASAILALAVGTEMAHAECCKAYQCGKMDGPTCCSGSTCYDYPDNPYS 60
 QY 60 QCLPGSHSNAGNNS-----STKKTST---KTSITTAATATVTKVTYTKT----- 103
 Db 61 QCVENENLSTNKSHTTTESAKTTTGTGSKTTTTEASKTTTTEASKTTTTEAS 120
 QY 104 --TTTSTSTTAASTSTSSAGYKVISGKSGSGSTRYWDCKKASGPGKASYTGP 161
 Db 121 KTTTITTKASTSTSSSSASTNYSAAVSGASNGETTRWDCKKPSGPGKADVTSP 180
 QY 162 VDTCASNGISLLDANAOSGCGNGGFMGNNQPMVAVNDLAYGPAASISGSEATWCCA 221
 Db 181 VGSCKMKGKTLADNNTONGCVGSSSYTCNDNQPVVSDILAYGPAASISGSEATWCCA 240
 QY 222 CYELTFTSGAASGKKMNVQVTNTGDLGNS--HFDLQMPGGGVIENGCAAGCAPNDG 278
 Db 241 CFELTFTSTAVKGGKMMVQVTNTGSDLSGNTGAHFDLQMPGGGVIENGCAATWGAAPTGG 300
 QY 278 WGARVGVSSVSDCASIPSAIOAGCKRPMFKNSDNPMTFKEVTGPAELTTRSGCERK 338
 Db 301 WGARVGVSSASDSCSNLPSALQAGCKRPMFKADNPMTYKQVTCPKAITAKSGCSRK 360
 XX
 RESULT 11
 ID AAO15054 standard; Protein; 360 AA.
 XX
 AC AAO15054;
 XX
 DT 22-AUG-2002 (first entry)
 XX
 DE Rhizopus arrhizus endoglucanase-related protein 3.
 XX
 KW Zygomyces-originated endoglucanase; cellulose binding domain;
 KW fibre processing; waste paper de-inking; paper pulp.
 XX
 OS Rhizopus arrhizus.
 XX
 FN WO200242474-A1.
 XX
 PD 30-MAY-2002.
 XX

PF 21-NOV-2001; 2001WO-JP10188.
 XX
 XX 21-NOV-2000; 2000JP-0354296.
 XX
 PA (MEIJ) MEIJI SEIKA KAISHA LTD.
 XX
 PI Nakane A, Baba Y, Koga J, Kubota H;
 XX
 XX WPI: 2002-471729/50.
 DR N-PSDB; AAL43246.
 XX
 PT Cellulose-binding domain-lacking Zygomyces-originated endoglucanase,
 PT with effect of endoglucanase activity enhanced in processing fibers,
 PT deinking waste paper and improving freeness of paper pulp -
 XX
 PS Claim 5; Page 63-65; 109pp; Japanese.
 XX
 CC The invention comprises the amino acid and coding sequences of
 CC Zygomyces-originated endoglucanase enzymes lacking the cellulose
 CC binding domain. The Zygomyces-originated endoglucanase enzymes of the
 CC invention have enhanced endoglucanase activity. The Zygomyces-
 CC originated endoglucanase enzymes of the invention are useful for
 CC processing fibres, de-inking waste paper and improving the freeness of
 CC paper pulp - which is particularly applicable in detergent compositions.
 CC The present amino acid sequence represents an endoglucanase-related
 CC protein of the invention.
 CC
 XX
 SQ Sequence 360 AA;
 Query Match 66.2%; Score 1209; DB 23; Length 360;
 Best Local Similarity 61.1%; Pred. No. 3.7e-82;
 Matches 220; Conservative 42; Mismatches 76; Indels 22; Gaps 5;
 QY 1 MKFTVAITSIAVALALSSS-AEAAAGSSVYGQCGIGMSGPTCCSGSTCYAOGKNTYS 59
 Db 1 MKFTLIASAILALAVGTEMAHAECCKAYQCGKMDGPTCCSGSTCYDYPDNPYS 60
 QY 60 QCLPGSHSNAGNNS-----STKKTST---KTSITTAATATVTKVTYTKT----- 103
 Db 61 QCVENENLSTNKSHTTTESAKTTTGTGSKTTTTEASKTTTTEASKTTTTEAS 120
 QY 104 --TTTSTSTTAASTSTSSAGYKVISGKSGSGSTRYWDCKKASGPGKASYTGP 161
 Db 121 KTTTITTKASTSTSSSSASTNYSAAVSGASNGETTRWDCKKPSGPGKADVTSP 180
 QY 162 VDTCASNGISLLDANAOSGCGNGGFMGNNQPMVAVNDLAYGPAASISGSEATWCCA 221
 Db 181 VGSCKMKGKTLADNNTONGCVGSSSYTCNDNQPVVSDILAYGPAASISGSEATWCCA 240
 QY 222 CYELTFTSGAASGKKMNVQVTNTGDLGNS--HFDLQMPGGGVIENGCAAGCAPNDG 278
 Db 241 CFELTFTSTAVKGGKMMVQVTNTGSDLSGNTGAHFDLQMPGGGVIENGCAATWGAAPTGG 300
 QY 278 WGARVGVSSVSDCASIPSAIOAGCKRPMFKNSDNPMTFKEVTGPAELTTRSGCERK 338
 Db 301 WGARVGVSSASDSCSNLPSALQAGCKRPMFKADNPMTYKQVTCPKAITAKSGCSRK 360
 XX
 RESULT 12
 ID ABB08062 standard; Protein; 360 AA.
 XX
 AC ABB08062;
 XX
 DT 27-AUG-2002 (first entry)
 XX
 DE R. oryzae CP96001 RCEII protein.
 XX
 KW Cellulase; endoglucanase; surfactant; detergent; cellulose; paper;
 KW pulp treatment; RCEII.
 XX
 OS Rhizopus oryzae.
 XX

Key	Location/Qualifiers
Peptide	1..23
Protein	1..23 /note="signal peptide"
Protein	24..360 /note="mature protein"
MO200238754-A1	
16-MAY-2002	
12-NOV-2001; 2001MO-JP09858	
10-NOV-2000; 2000JP-0343921	
(MEIJU) MEIJU SEIKA KAISHA LTD.	
Koga J, Nakane A, Baba Y, Kono T;	
WPI, 2002-471555/50.	
Cellulase preparations containing transconjugant-originated endoglucanase and non-ionic surfactants, useful in detergent compositions, in treating cellulose fibers and delinking waste paper and improving freeness of paper pulp	
Claim 3; Page 25-27; 38pp; Japanese.	
The invention relates to a cellulase preparation comprising a transconjugant-originated endoglucanase and a non-ionic surfactant. The endoglucanase is selected from RCEI, RCEII, RCEIII, MCEI, MCEII or PCEI proteins. The preparations are useful in detergent compositions, in treating cellulose fibers and delinking waste paper and improving the freeness of paper pulp. The fibers treated by the preparations have reduced feathering and improved skin-feel and appearance with colour clarification, local change in colour and softening, and after delinking and paper pulp treatment, there is an improvement on freeness of the paper pulp. This treatment with the cellulase preparation can be operated at significantly lower cost. The present sequence represents the R. oryzae CP96001 RCEIII protein.	
Sequence 360 AA;	
Query Match 66.2%; Score 1209; DB 23; Length 360;	
Best Local Similarity 61.1%; Pred. No. 3.7e-92;	
Matches 220; Conservative 42; Mismatches 76; Indels 22; Gaps 5	
1 MKPFLVAITSLAVLALSSS-AEASCSGVYGGCGGIGMSGPTCCESGTCVAQEGNKYY59	
1 MKPFLTASATLALAVGEMAHAECSKAYVCCGCKMWDPTCCESGTCVDPDPNPF58	
60 QCLPGSHNNAGNAS-----STKSTST---KTSTTTAKATVATVTKTKT-----103	
61 QCVRENENITSNKSHKTTTTHESAKTKTTTKSGSKTTTTHESAKTKTTTTHESAKTKTTT120	
104 --TKTTTSTTTAASTSTSSAGKYISGKSSGSGSTTRVWPCCKRASCMPKASVTGP161	
121 KKTITTTTKASTSTSSSSSSASTVYSAVSGASNGEITRYMDCRSCMPKADVTSP180	
162 VDTCSNIGISLIDANAOSGNGNGNGFMVNNNOPAVNDLAYGPAASISGSEAGCCG221	
161 VGSCKDKGKTALDNTNONGCTGGSSYTNDNDQPMWVSDLAYGPAASISGSEATWCCA240	
222 CYELFTTSGAASGKRVVQVNTGDLGN--HFDLMPGGGIGIENGCAQMGAPNDG278	
241 CPELFTSTAVYGGKRVVQVNTGDLGNSGAHDLMPGGGIGIENGCAQMGALTDG300	
279 WGARVGGVSVDDCASLPGALQAGKMFNNPKNSDNTPTMFEKVTCPAEITTSGCCERK338	
301 WGARVGGVSVASDCSNLPSALQAGKMFNNPKNADNTPTMYKQVTCPKAITASGCSRK360	

ID	Sequence	Score	DB	Length	Matches	Conservative	Mismatches	Indels	Gaps
XX	AA089822 standard; Protein; 366 AA.	65.8%;	DB 21;	Length 366;					
XX	AA089822;	60.1%;	Pred. No. 1.2e-81;						
XX	25-SEP-2000 (first entry)	48;	Mismatches 67;	Indels 32;	Gaps 8				
XX	Endoglucanase protein sequence 2.								
XX	Endoglucanase; cellulose breakdown; produce pulp; papermaking;								
XX	animal foodstuff.								
XX	Rhizopus oryzae.								
XX	WO200024879-A1.								
XX	04-MAY-2000.								
XX	25-OCT-1999;	99WO-JP05884.							
XX	23-OCT-1998;	98JP-0302387.							
XX	(MEIJU) MEIJU SEIKA KAISHA LTD.								
XX	Nakamura Y, Moriya T, Baba Y, Yanai K, Sumida N, Nishimura T;								
XX	Mureshima K, Nakane A, Yaguchi T, Koga J, Murakami T, Kono T;								
XX	WPI; 2000-365117/31.								
XX	N-PSDB; AAA62727.								
XX	Endoglucanases of fungal origin with high activity under alkaline								
XX	conditions for production of paper pulp and animal feedstuffs -								
XX	Claim 44; Page 110-113; 180PP; Japanese.								
XX	This sequence represents an endoglucanase protein. The invention relates								
XX	to an endoglucanase of fungal origin which can completely break down								
XX	cellulose at a concentration of less than 1mg protein/litre,								
XX	and produces more than 50% breakdown of cellulose at pH 8.5. The								
XX	invention includes endoglucanase protein sequences (see								
XX	AA089822-809830), endoglucanase nucleotide sequences (see								
XX	AA089822-862732) and primers (AA089822-862802) which are used in the								
XX	identification of the endoglucanase sequences, and in the construction of								
XX	vectors containing the polynucleotides. The endoglucanase enzymes are								
XX	used for the production of pulp for papermaking and for the production of								
XX	animal feedstuffs.								
XX	Sequence 366 AA;								
XX	Query Match	65.8%;	Score 1202;	DB 21;	Length 366;				
XX	Best Local Similarity	60.1%;	Pred. No. 1.2e-81;						
XX	Matches 221;	Conservative 48;	Mismatches 67;	Indels 32;	Gaps 8				
XX	1 MKFTVAITSAVALALSSS-AAEASGSSVYGCGGIGMGPTCCESGSGTCVAGQENKKYYS	59							
XX	1 MKFTITSSALLALAGTENASAAKSKLYGCGGKDMNGPTCCESGSGTC--KVSNDYYS	58							
XX	60 QCL-PSGSHNNAGNAS-----STKSTTK--TSTTTAKATATVTT	96							
XX	59 QCLAPENNGKSSSECSLYGCGGKDMNGPTCCESGSGTCVSNDDYYSQCLAPENNGKTS	118							
XX	97 KTVTKTTTKT--TKTSTTAASTSTSSAGYAVISGSGSGSSTTRYMDCKKASCSMPG	154							
XX	119 ESAHKTITTTTTPAKEITTTTAAKSNSSSGKTSIVSGSGAGNVTTRRYMDCKKASCSMPG	178							
XX	155 KASYTGPDVTCASNGISIL--DANAQSGCNGANGEMCNMNPAAVNDLAYGFAAASITAGS	213							
XX	179 KANVSPFKSKNKGAVTALSDNSVQSCNGNSMYCNDNDPMVAVNDLWAGFAAAASISG	238							
XX	214 NEAGWCCGCGCYELFTTSGAASGKKNVQVYNTGELISN---HPDLQPGGCGVIFNGCAA	270							
XX	239 GSRWCCSCCFELFTSTISVAAKKNVITQVNTGGLSSGTGAHPDLQPGGCGVIFNGCSK	298							
XX	271 QMGARNDMGARVGGVSVSDCASLPSALQAGCKMRPNWFKNSDNPMTTKEVYTCPAELT	330							

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Db      299  OMGAPNDGMSRYGIGSSASDCSLPSALQAGCKMRFNWPFKNADNPMTYKEVTCPEKIT 358
Oy      331  TRSGCERK 338
Db      359  AKTGCSRK 366

RESULT 14
AA015053
ID      AA015053 standard; Protein; 366 AA.
XX
AC      AA015053;
XX
XX      22-AUG-2002 (first entry)
XX
DE      Rhizopus arrhizus endoglucanase-related protein 2.
XX
KW      Zygomycetes-originated endoglucanase; cellulose binding domain;
KW      fibre processing; waste paper de-linking; paper pulp.
XX
OS      Rhizopus arrhizus.
XX
PN      WO200242474-A1.
XX
PD      30-MAY-2002.
XX
PF      21-NOV-2001; 2001WO-JP10188.
XX
PR      21-NOV-2000; 2000JP-0354296.
XX
PA      (MEIJ ) MEIJI SEIKA KAISHA LTD.
XX
PI      Nakane A, Baba Y, Koga J, Kubota H;
XX
XX      WPI; 2002-471729/50.
XX
DR      N-PSDB; AAL43245.
XX
PT      Cellulose-binding domain-lacking Zygomycetes-originated endoglucanase,
PT      with effect of endoglucanase activity enhanced in processing fibers,
PT      de-linking waste paper and improving freeness of paper pulp -
XX
PS      Claim 5; Page 58-60; 109pp; Japanese.
XX
CC      The invention comprises the amino acid and coding sequences of
CC      zygomycetes-originated endoglucanase enzymes lacking the cellulose
CC      binding domain. The zygomycetes-originated endoglucanase enzymes of the
CC      invention have enhanced endoglucanase activity. The zygomycetes-
CC      originated endoglucanase enzymes of the invention are useful for
CC      processing fibres, de-linking waste paper and improving the freeness of
CC      paper pulp - which is particularly applicable in detergent compositions.
CC      The present amino acid sequence represents an endoglucanase-related
CC      protein of the invention.
XX
SQ      Sequence 366 AA;

Query Match      65 8%; Score 1202; DB 23; Length 366;
Best Local Similarity 60.1%; Pred. No. 1.2e-81;
Matches 221; Conservative 48; Mismatches 67; Indels 32; Gaps 8;

Oy      1  MKFTVAISIVALLSSS-AAASCSSVYGCGGIGMSGPTCCSGSGTCAOEGNKRYYS 59
Db      1  MKFTITSSALLALALGTEMASNAKCSKLYGCGGKDMNGPTCCSGSSTC-KVSNDRYYS 58
Oy      60  QCL-PGSHNNAGNAS-----STKKTSTK--TSTTAKATATVTT 96
Db      59  QCLAPESNGNKSSECSKLYGCGGKDMNGPTCCSGSSTCKVSNDRYYSQCLAPESNGNRTS 118
Oy      97  KTVVTKTKT--TTKSTTAAASTSTSSAGKVIISGKSGSGSTTRRWDCCKASCMPG 154
Db      119  ESAHKTITTTTAPAKITTTTAKASNSNSGKYSIVSGASGIVGTTRRWDCCKASCMPG 178
Oy      155  KASVTVGPDVTCASNGISLIL-DANAOSGCGNGGFMCCNNNPWAVNDILAYGFAAASIAGS 213

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Db      179  KANVSSEVKSCKMKGTALSDSNVQSCNGNSYMCNDNOPWAVNDMLAYGFMAAISGG 238
Oy      214  NEAGMCCGCELTFTSGAAGKXKVVVNTNGDLSN---HFDLQMPGGVGIFNGCAA 270
Db      239  GESRMCCSCFELTFTSTVAGKKRVIOVNTGDLSSTGAFHFDLQMPGGVGIFNGCSK 298
Oy      271  OMGAPNDGMSRYGIGSSASDCSLPSALQAGCKMRFNWPFKNADNPMTYKEVTCPEKIT 330
Db      299  OMGAPNDGMSRYGIGSSASDCSLPSALQAGCKMRFNWPFKNADNPMTYKEVTCPEKIT 358
Oy      331  TRSGCERK 338
Db      359  AKTGCSRK 366

RESULT 15
ABB08061
ID      ABB08061 standard; protein; 366 AA.
XX
AC      ABB08061;
XX
XX      27-AUG-2002 (first entry)
XX
DE      R. oryzae CP96001 RCEII protein.
XX
KW      Cellulase; endoglucanase; surfactant; detergent; cellulose; paper;
KW      pulp treatment; RCEII.
XX
OS      Rhizopus oryzae.
XX
FH      Key
FT      Peptide      Location/Qualifiers
FT      Protein      /note= "signal peptide"
FT      /note= "mature protein"

WO200238754-A1.
16-MAY-2002.
12-NOV-2001; 2001WO-JP09858.
10-NOV-2000; 2000JP-0343921.
PA      (MEIJ ) MEIJI SEIKA KAISHA LTD.
PI      Koga J, Nakane A, Baba Y, Kono T;
XX
XX      WPI; 2002-471555/50.
XX
PT      Cellulase preparations containing transconjugant-originated
PT      endoglucanase and non-ionic surfactants, useful in detergent
PT      compositions, in treating cellulose fibers and de-linking waste paper and
PT      improving freeness of paper pulp -
XX
PS      Claim 3; Page 23-24; 38pp; Japanese.
XX
CC      The invention relates to a cellulase preparation comprising a
CC      transconjugant-originated endoglucanase and a non-ionic surfactant. The
CC      endoglucanase is selected from RCEI, RCEII, RCEIII, MCEI or PCEI
CC      proteins. The preparations are useful in detergent compositions, in
CC      treating cellulose fibers and de-linking waste paper and improving the
CC      freeness of paper pulp. The fibers treated by the preparations have
CC      reduced feathering and improved skin-feel and appearance with colour
CC      clarification, local change in colour and softening, and after de-linking
CC      and paper pulp treatment, there is an improvement on freeness of the
CC      paper pulp. This treatment with the cellulase preparation can be operated
CC      at significantly lower cost. The present sequence represents the
CC      R. oryzae CP96001 RCEII protein.
XX
SQ      Sequence 366 AA;

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Query Match 65.8%; Score 1202; DB 23; Length 366;
Best Local Similarity 60.1%; Pred. No. 1.2e-81;
Matches 221; Conservative 48; Mismatches 67; Indels 32; Gaps 8;

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QY      1 MKETVAITSIAVALALSSS-AAAAAGSYGCGGIGMGGPTCCSGSGSTCVAAQAGNKYS 59
DB      1 MKETTTSSALALALGTEMASAAKCSKLYGCGGKDMNGPTCCSGSTC-KVSNDIYS 58
QY      60 QCL-PSHSNNAGNAS-----STKXSTK--TSTTTAKATATVTT 96
DB      59 QCLAPESNGKSSBCKLYGCGGKDMNGPTCCSGSGSTCKVSNDIYSQCLAPESNGKTS 118
QY      97 KTVTKTTT--TTKTSTTAAASTSTSSAGYKVISGKSGSGSTTRWDCCKKASCMPG 154
DB      119 ESAKTTTTPAKKEITTTAKASNSNSGKYIVSGGASGNGVTRWDCCKKASCMPG 178
QY      155 KASYTGPVDTCASNGISIL-DANAQSGCGNGGPMCMNNOPMAVNDLAYGFAAASIAGS 213
DB      179 KANVSSPVKSCNDGVLTALSDSNVQSGCGNGSYMCNDNOPMAVNDNLAYGFAAALSG 238
QY      214 NEAGMCCGCELTFTTGAASGKKMYVQVNTNGSLGN--HPDLQMRGGVGI FNGCAA 270
DB      239 GESRMCCSCPELTFTTSTVAGKKMYIQVNTNGSLGSSTGAFDLQMRGGVGI FNGCSK 298
QY      271 QMGAPNDGAGARYGVSVSDCASLPSALQAGCKMRFMPKXSDNFTFKVETCPALFT 330
DB      299 QMGAPNDGAGSRRYGVSSASDCSSLPSALQAGCKMRFMPKXADNPSMTYKEVTCPEKIT 358
QY      331 TRSGCERK 338
DB      359 AKTCSRK 366
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